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EXAMINER	
NATNAEL, PAULOS M	
ART UNIT	**PAPER NUMBER**
2614	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/884,897	FOLIO, RICHARD	
	Examiner	Art Unit	
	Paulos M. Natnael	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-40 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-40 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6,7 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims **20-22, 24-27, 38 and 40** are rejected under 35 U.S.C. 102(b) as being anticipated by Dougherty, U.S. Pat. No. 5,737,025.

Considering claim **20**, the claimed substituting luminance information within the video signal with a modulated frame of content data on one or more lines of the active portion of the video signal to provide an additional information channel on the video signal, is met by the disclosure that "an ancillary code is added to a composite video signal in its active video portion." (See Abstract and Fig.1)

Considering claim 21, forming the modulated frame of data by encapsulating a frame of content data with video synchronization information, is met by Synchronization To Incoming Data 34 and Carrier Modulation 44, Fig.3;

Considering claim 22, a method according to Claim 21, and further comprising the step of embedding a frame sequence and frame marker for synchronization;

See rejection of claim 21.

Considering claim **24**, a method according to Claim 20, and further comprising the step of substituting a modulated frame of content data on one of at least the top or bottom video lines in a video signal, corresponding to the top or bottom of a video display that is substantially shadowed from viewing.

See rejection of claim 20;

Considering claim **25**, formatting the video signal for transmission as one of a National Television System Committee (NTSC), Digital Advanced Television Systems Committee (ATSC), Sequentiel Couleur a Memoire (SECAM), or Phase Alternation Line (PAL) compliant broadcasting format video signal, is met by the disclosure, "It is known to add ancillary signals to program signals...Such programs may include television programs, radio programs, and/or the like, and the broadcast of such programs over the air, over a cable, via a satellite..." (col. 1, lines 13-23)

Considering claim **26**, a method according to Claim 25, and further comprising the step of receiving the video signal after broadcast in a broadcasting format and extracting the content data that had been substituted into the video signal as the additional information channel, is met by the decoding circuit or the decoder 18, Fig.1.

Considering claim **27**, a method for encoding information into a video signal of a television signal comprising the step of substituting with a modulated frame of content

data one of at least the top or bottom video lines in a video signal corresponding to the top or bottom of a video display that are substantially shadowed from viewing on a television.

See rejection of claim 20;

Considering claim **38**,

a) receiving the video signal within a decoder and decoding the video signal into a video data stream, is met by the decoder 18, fig.1;

b) extracting the content data from the video data stream, is met by decoder 18, fig.1. (see col. 6, lines 39-51 and col. 9, 43-51, as well as, Fig.4 decoder)

Considering claim **40**, a method according to Claim 38, and further comprising the step of removing system noise and transmission artifacts within a bit and frame synchronizer circuit, is met by Synchronization with Code 66, Fig.4.

3. Claims **15-16,18, and 19** are rejected under 35 U.S.C. 102(b) as being anticipated by Stewart, U.S. Pat. No. 5,666,170.

Considering claim **15**,

a) a video signal decoder for converting the video signal into a video data stream, is met by Decoder 12, Fig.1;

b) a line separation and restoration circuit that extracts the content data from the video data stream, is met by the DeInterleaver 80, and Deinterleaver 85, Fig.1;

Considering claim **16**, wherein said line separation and restoration circuit further comprises a line deinterleaver for separating video lines having the encoded content data from the video data stream into a modulated frame of content data, is also met by the DeInterleaver 80, and Deinterleaver 85, Fig.1;

Considering claim **18**, a decoder according to Claim 16, and further comprising a bit and frame synchronizer circuit for synchronizing the modulated frame of content data, is met by synchronization circuit 75, fig.1;

Considering claim **19**, a decoder according to Claim 16, and further comprising a demodulator/decode circuit for demodulating and decoding the modulated frame of content data into the content data, is met output processor 125, fig.1. (See Abstract, and col. 10, line 51 through col. 11, line12)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. 0Patentability shall not be negatived by the manner in which the invention was made.

5. Claims **1-14, 23, 28-37, and 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Dougherty et al., U.S. Pat. No. 5,737,025 in view of You et al., U.S. Pat. No. 5,581,361.

Considering claim **1,**

a) a modulation and video synchronization circuit for converting content data into at least one modulated frame of data having video synchronization information is met by synchronization to incoming data 34 and carrier modulation 44, Fig. 3.

Except for;

b) an interleaver operatively connected to said modulation and video synchronization circuit for interleaving the modulated frame of data within at least one selected line of the video data stream.

Regarding b), Dougherty does not specifically illustrate an interleaver circuit. However, Dougherty discloses that the " hierarchical ancillary code may be frequency-interleaved between harmonics of the horizontal sync frequency of the composite video signal." (Abstract) Interleaving and De-interleaving data is well known in the art.

In that regard, You et al, disclose an interleaving/de-interleaving apparatus for digital video cassette recorder.

Therefore, since Dougherty discloses that interleaving may be used, it would have been obvious to the skilled in the art at the time the invention was made to modify

the system of Dougherty et al by providing the interleaving circuit of You et al in order to improve correction and overall encoding of the signal.

Considering claim **2**, a system according to Claim 1, and further comprising a decode circuit for receiving the video data stream that has been encoded with the content data and extracting the content data therefrom, is met by decoder 18, fig.1; (see col. 6, lines 43-50)

Considering claim **3**, a system according to Claim 2, wherein said decode circuit further comprises a line deinterleaver for separating video lines having the encoded content data from the video data stream into a modulated frame of content data.

Regarding claim 3, see rejection of claim 1(b).

Considering claim **4**, a system according to Claim 3, wherein said decode circuit further comprises a DC restoration circuit that restores a DC bias level for any content data in the modulated frame of data.

Regarding claim 4, Dougherty does not specifically disclose a DC restoration circuit. However, the Examiner takes Official Notice here in that DC restoration is well known in that and thus, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Dougherty et al by providing a DC restorer in order to correct bias in the circuit.

Considering claim **5**, a system according to Claim 3, wherein said decode circuit further comprises a bit and frame synchronizer circuit for synchronizing the modulated frame of content data, is met by the Synchronization With Code 66, Fig. 4;

Considering claim **6**, a system according to Claim 3, wherein said decode circuit further comprises demodulator/decode circuit for demodulating and decoding the modulated frame of content data into the content data, is met by decoder 18 (fig.1) or Decoder 60 (fig.4).

Considering claim **7**, a system according to Claim 1, and further comprising a video signal decoder circuit for receiving a video signal that is compliant with a broadcasting format and converting the video signal into the video data stream to be encoded with content data, is met by Decoder 18, fig.1;

Considering claim **8,** a system according to Claim 7, wherein the video signal that is compliant with a broadcasting format comprises one of a National Television System Committee (NTSC), Digital Advanced Television Systems Committee (ATSC), Sequentiel Couleur a Memoire (SECAM), or Phase Alternation Line (PAL) compliant broadcasting format, is met by the disclosure, "It is known to add ancillary signals to program signals...Such programs may include television programs, radio programs, and/or the like, and the broadcast of such programs over the air, over a cable, via a satellite..." (col. 1, lines 13-23)

Considering claim **9**, a system according to Claim 1, and further comprising a video signal formatting circuit operatively connected to said interleaver for receiving the video data stream after interleaving with the modulated frame of content data and formatting the video data steam into a video signal that is compliant with a broadcasting format.

See rejection of claim 1(b).

Considering claim **10**, a system according to Claim 9, and further comprising a decode circuit for receiving the video signal that has been encoded with the content data and extracting the content data, is met by the Decoder 18, fig.1;

Considering claim **11**, a video signal decoder for converting the video signal into a video data steam; and a line separation and restoration circuit that extracts the content data from the video data stream.

See rejection of claim 4.

Considering claim **12**, an interleaver for receiving a video data stream and a modulated frame of content data having video synchronization information and interleaving the modulated frame of data within at least one selected video line of the video data stream that is substantially shadowed from viewing on a video display.

See rejection of claim 1;

Considering claim **13**, an encoder according to Claim 12, and further comprising a modulation and video synchronization circuit for converting content data into at least one modulated frame of data having video synchronization information, is met by Synchronization To Incoming Data 34 and Carrier Modulation 44, Fig.3;

Considering claim **14**, an encoder according to Claim 12, and further comprising a video signal decoder circuit for receiving a video signal that is compliant with a broadcasting format and converting the video signal into the video data stream to be encoded with content data, is met by decoder 18 fig.1 or Decoding circuit 60, fig.4;

Considering claim **23**, a method according to Claim 20, and further comprising the step of forming the modulated frame of content data by coding a stream of content data with **error correction and modulation information**.

Regarding claim **23**, Dougherty discloses modulating the additional information before it is added to the composite video signal. Dougherty does not specifically disclose coding the content data with error correction information. Error correction, however, is well known in the art. In that regard, You et al., disclose that when interleaving/deinterleaving is performed ..."error correction capability is improved by performing outer and inner coding with respect to the interleaved data." (Abstract)

Therefore, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Dougherty et al by providing the error

correction means of You et al., in order to more easily predict and correct random and burst errors in the signal.

Considering claim **28**, a method according to Claim 27, wherein the content data comprises digital content data that has been coded with error correction and modulation information for a video signal broadcasting format.

See rejection of claim 23;

Considering claim **29**, a method according to Claim 28, wherein the video signal comprises one of a National Television System Committee (NTSC), Digital Advanced Television Systems Committee (ATSC), Secuentiel Couleur a Memoire (SECAM), or Phase Alternation Line (PAL) compliant broadcasting format, is met by the disclosure, "It is known to add ancillary signals to program signals... Such programs may include television programs, radio programs, and/or the like, and the broadcast of such programs over the air, over a cable, via a satellite..." (col. 1, lines 13-23)

Considering claim **30**, a method according to Claim 28, and further comprising the step of receiving the video signal after broadcast and extracting content data that had been substituted into the video signal as an additional information channel, is met by the decoder 18 or decoding circuit 66, figs. 1 and 4, respectively.

Considering claim **31**, the claimed receiving a video signal as a video data stream to be enhanced with content data; converting content data into at least one frame of content data;

adding video synchronization information and modulation data into the at least one frame of content data to form a modulated frame of content data; interleaving the modulated frame of content data within at least one selected video line of the video signal.

See rejection of claim 1;

Considering claim **32**, a method according to Claim 31, and further comprising the step of converting the video data stream that has been interleaved with the modulated frame of content data into a video signal that is compliant with a broadcasting format.

See rejection of claim 1;

Considering claim **33**, a method according to Claim 32, wherein the broadcasting format for the video signal comprises one of a National Television System Committee (NTSC), Digital Advanced Television Systems Committee (ATSC), Sequential Couleur Aemoire (SECAM), or Phase Alternation Line (PAL) compliant broadcasting format.

See rejection of claim 29.

Considering claim **34**, a method according to Claim 31, and further comprising the steps of: broadcasting the video signal;

a) receiving the broadcasted video signal within a decoder and converting the received video signal into a video data steam, is met by the decoder 18, fig.1;

b) extracting the content data from the video data stream, is met by the decoder as well. (See figure 4).

Considering claim **35**, a method of processing a video signal comprising the steps of:

a) receiving a video signal as a video data stream to be enhanced with content data, is met by video input 32, fig.1;

b) converting content data into frames of content data, is met by data decoding 35, fig.1;

c) adding video synchronization information and modulation data into the frame of content data to form a modulated frame of content data, is met by synchronization to incoming data 34 and by carrier modulation 44, fig.1;

e) converting the video data stream into a video signal for broadcast, is met by Decoder 18, fig.1 (or decoder 60 fig.4.)

f) receiving the video signal within a decoder and decoding the video signal into a video data stream, is met by input to Decoder 18, fig.1;

g) extracting the content data from the video data stream, is met by the disclosure, "A plurality of decoders 16 and 18 are provided in association with selected points of distribution of the composite video signal in order to decode the ancillary signal codes which have been encoded onto the composite video signal by the ancillary signal encoders 12-1, 12-2, . . . 12-N. The decoder 16 is associated with the distribution point

2 so that it decodes the ancillary signal codes from the composite video signal at the output of the ancillary signal encoder 12-2, and the decoder 18 is associated with the distribution point N so that it decodes the ancillary signal codes from the composite video signal at the output of the ancillary signal encoder 12-N. However, more or fewer decoders may be provided at these or other distribution points." (col. 6, lines 39-51)

Except for;

c) interleaving the modulated frame of content data within at least one =selected video line of the video data stream;

Regarding c), see rejection of claim 1(b).

Considering claim **36**, a method according to Claim 35, wherein the step of extracting comprises the step of restoring a DC bias level for any content data.

See rejection of claim 4.

Considering claim **37**, a method according to Claim 35, and further comprising the step of removing system noise and transmission artifacts within a bit and frame synchronizer circuit, is met by Synchronization with Code 66, Fig.4.

Considering claim **39**, a method according to Claim 38, wherein the step of extracting the content data from the video data stream comprises the step of restoring a DC bias level for any content data.

See rejection of claim 4.

6. Claim **17 is** rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart, U.S. Pat. No. 5,666,170.

Considering claim **17**, Stewart discloses all claimed subject matter, except for; wherein said line separation and restoration circuit further comprises a DC restoration circuit operatively connected to said line deinterleaver and operative on said video data stream for restoring a DC bias level to content data encoded within the modulated frame of data.

Stewart does not specifically disclose a DC restoration circuit. However, the Examiner takes Official Notice here in that DC restoration is well known in that and thus, it would have been obvious to the skilled in the art at the time the invention was made to modify the system of Stewart by providing a DC restorer in order to correct bias in the circuit.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Symes, U.S. Pat. No. 6,480,545 discloses an architecture for multi-format video processing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paulos M. Natnael whose telephone number is (703) 305-0019. The examiner can normally be reached on 6:30am -3pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.

MICHAEL H. LEE
PRIMARY EXAMINER

Paulos Natnael
September 29, 2003